HOW DO I COMPLY

WITH THE

TRU ATCM
FOR
OPERATORS OF TRUs AND
TRU GENERATOR SETS,
AND FACILITIES WHERE TRUs
OPERATE?

California Environmental Protection Agency

Air Resources Board

Stationary Source Division
Emissions Assessment Branch

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TRU ATCM
for
In-Use Diesel-Fueled Transport Refrigeration Units (TRU)
and TRU Generator Sets,
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How Do I Comply with the TRU ATCM?

Introduction

This document provides guidance to parties affected by the Transport Refrigeration Unit (TRU) Airborne Toxic Control Measure (ATCM) in a "How do I Comply?" format. This guidance is based on the regulatory language of Title 13, California Code of Regulations, section 2477 (13 CCR, §2477).

Flowcharts are used where space and information lends itself to this approach. The reader is directed to references (Ref.) within this document and outside this document when appropriate.

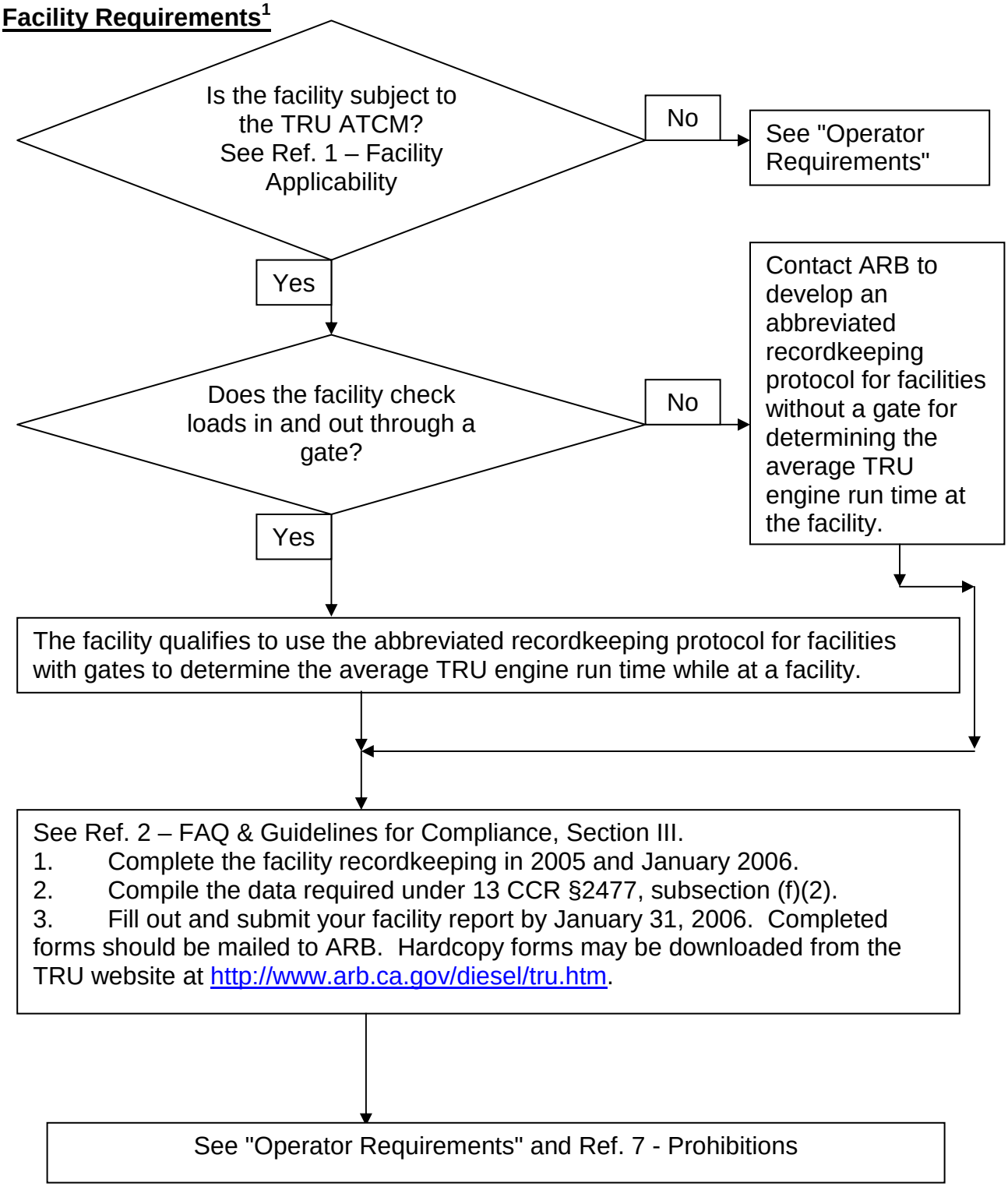
Many of the terms used in this guidance have precise meaning. For the sake of clarity, all of the definitions of 13 CCR, §2477 are included in this guidance in Ref. 10 – Definitions, starting on page 19.

If this guidance creates conflicts in interpretation, the regulatory language of the TRU ATCM, 13 CCR, §2477, shall have higher legal authority. This document may be updated from time to time with or without notice.

For more information about TRUs you can visit any of several ARB sites dealing with the TRU ATCM and reducing risk from diesel engines. The best place to start is the TRU web page at **http://www.arb.ca.gov/diesel/tru.htm**.

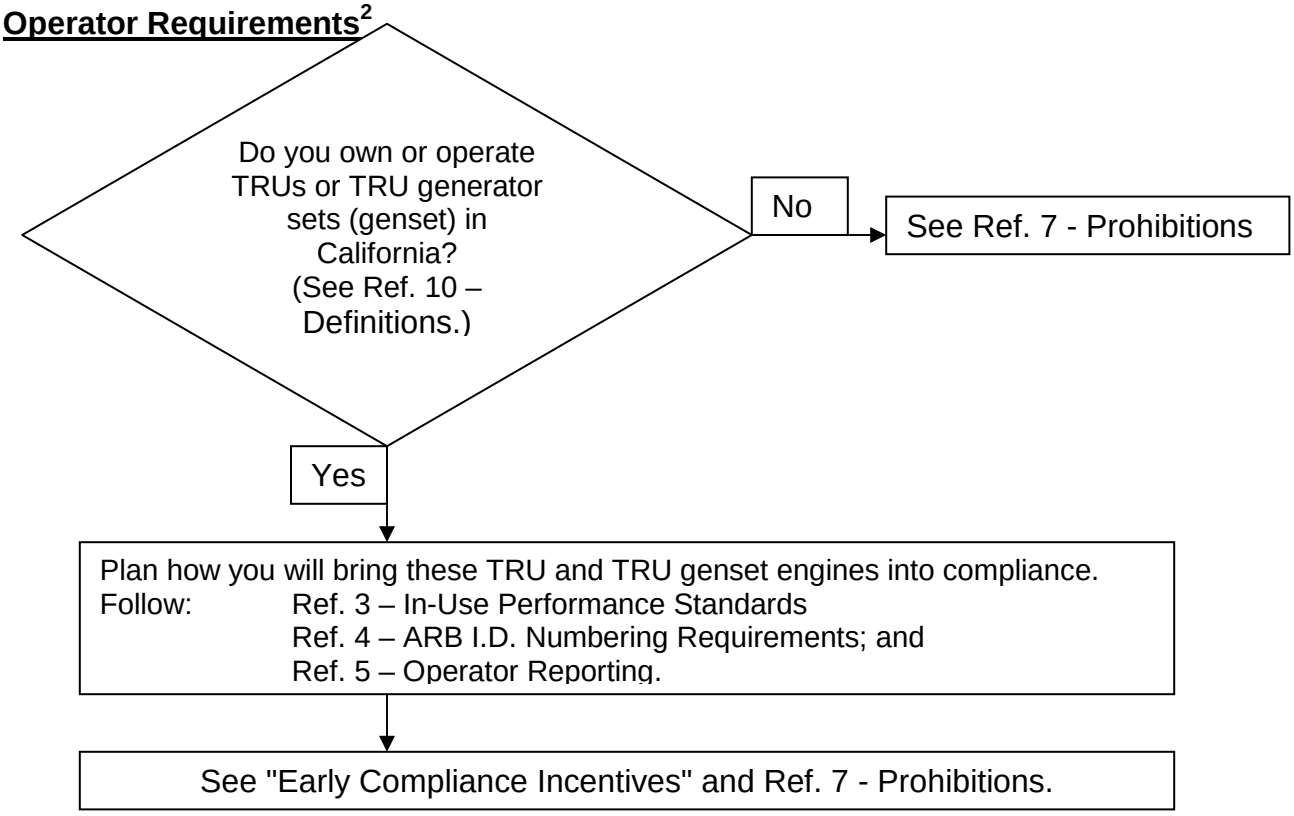
To obtain a copy of the regulation, ARB staff report, and other related documents, visit our web site at http://www.arb.ca.gov/regact/trude03/trude03.htm.

Facility Requirements[1]

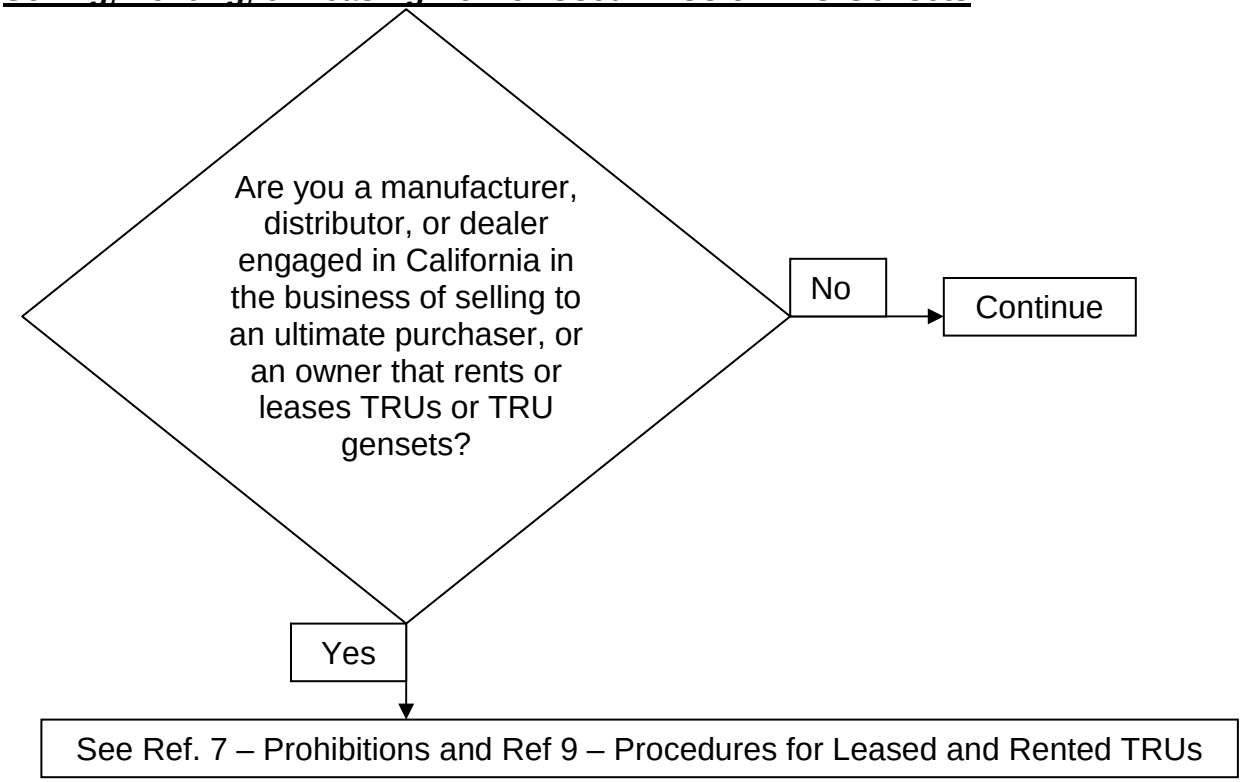


[1] Review 13 CCR §2477(b) - Applicability and see Ref. 1 – TRU ATCM Facility Applicability, below.

Operator Requirements[2]

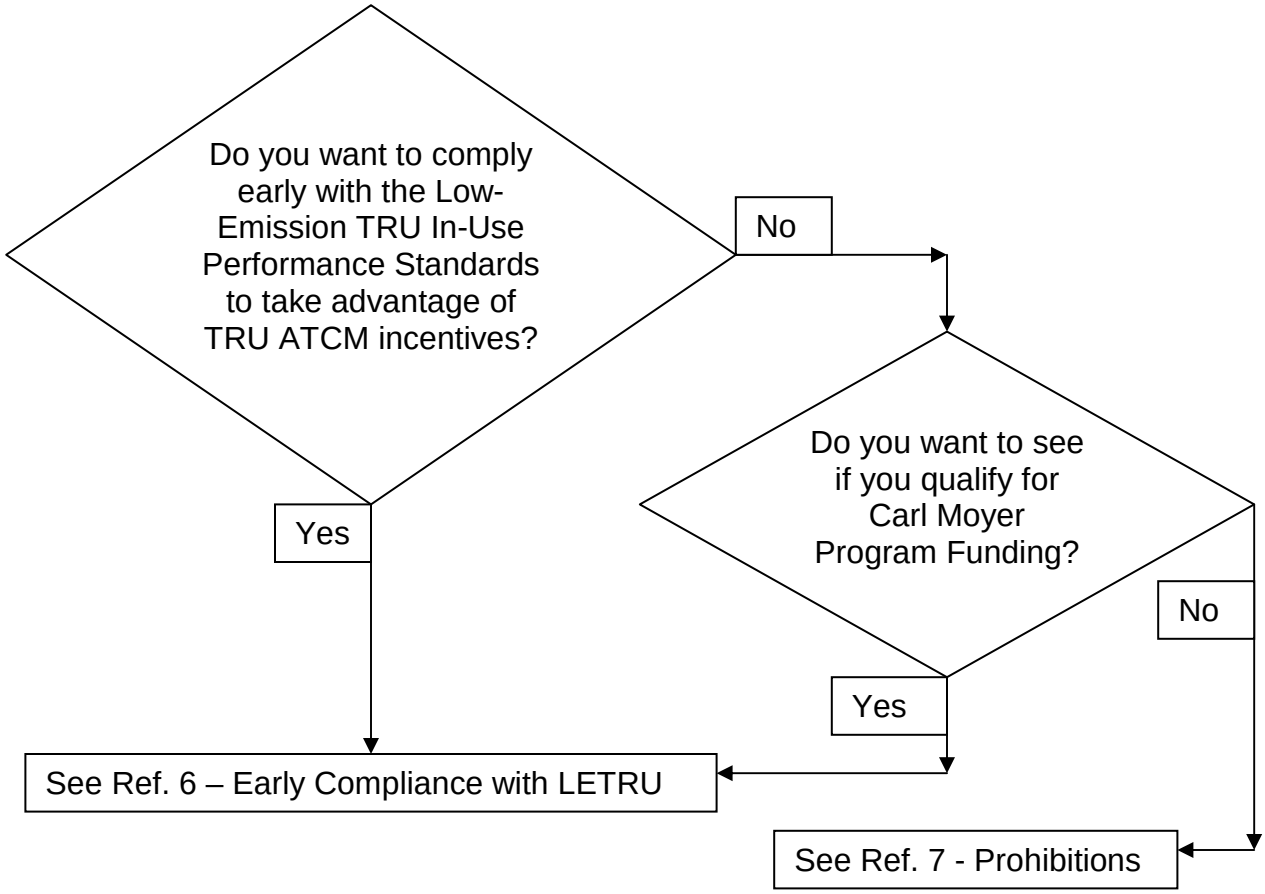


Selling, Renting, or Leasing New or Used TRUs or TRU Gensets



[2] See 13 CCR(e)(1) and Ref. 2 – FAQ and Guidelines for Compliance, section IV.
Note: Military Tactical Support Equipment are exempt (see definition in Ref. 10 – Definitions).

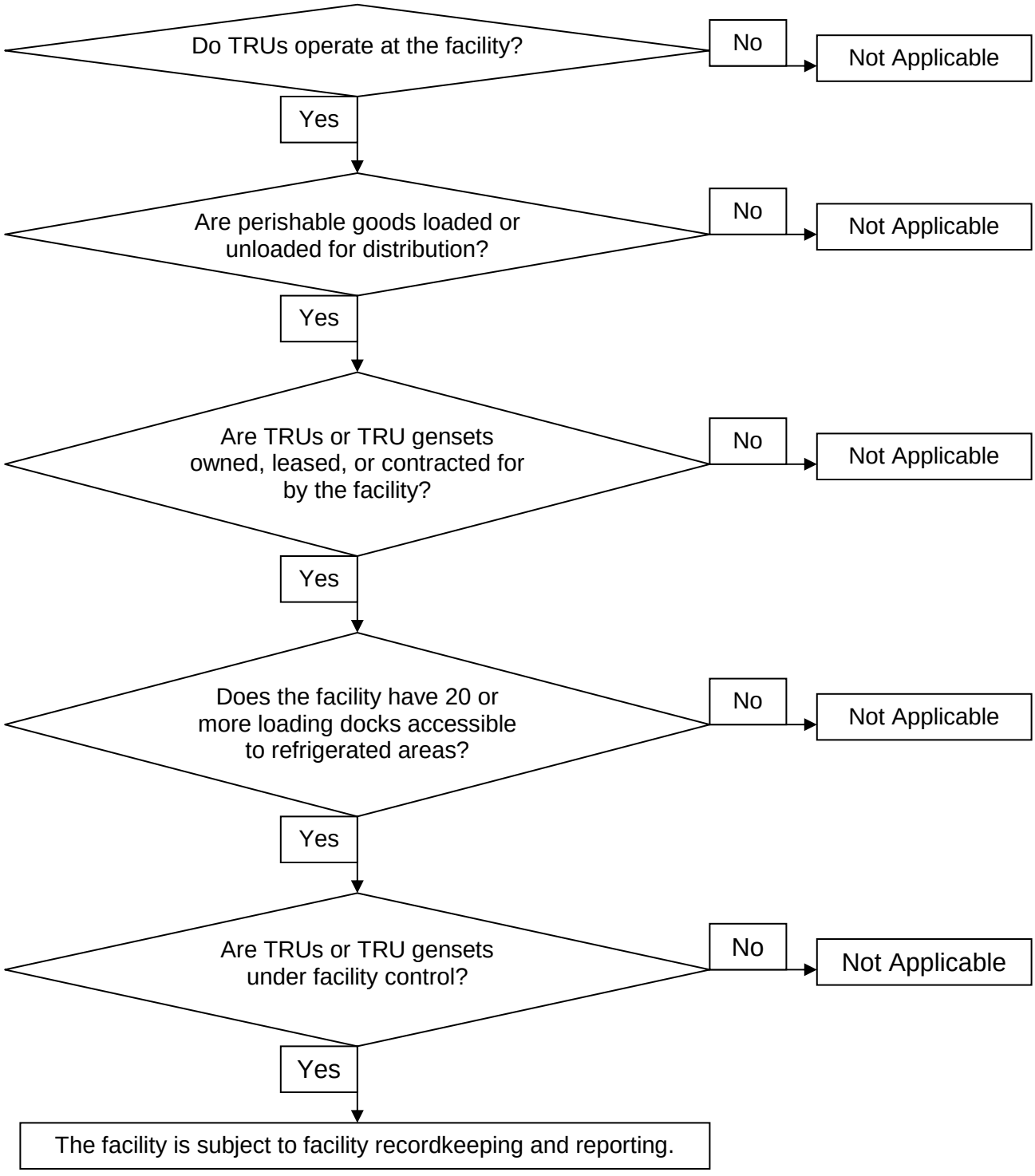
Early Compliance Incentives[3]



[3] Review 13 CCR, §2477(e)(1)(F) – Early Compliance with LETRU In-Use Performance Standards.

Ref. 1 – Facility Applicability[4]

If the answer is "Yes" to all of the following questions, then the facility is subject to the regulation. If the answer is "No" to **any one** of these questions, then the facility is not subject to the Facility Reporting requirements of the ATCM.



[4] Review 13 CCR, §2477(b)(2), see Ref. 2 – FAQ & Guidelines for Compliance, section III and definition of "facility control" in Ref. 10 – Definitions.

Ref. 2 – FAQ and Guidelines for Compliance

Review the document titled "Frequently Asked Questions and Guidelines for Compliance with the TRU ATCM for Operators of TRUs and TRU Generator Sets, and Facilities Where TRUs Operate," which is posted on ARB's TRU web site at http://www.arb.ca.gov/diesel/tru.htm.

Ref. 3 – In-Use Performance Standards[5]

a. Review your TRU engine and TRU genset engine inventory.
   1. For each TRU and TRU genset, list:
      Engine model, model year, rated horsepower, and serial number.
   2. Group them by horsepower category (e.g. separate the less than 25 hp engines from the 25 hp and greater engines). Arrange the units to see how many of each engine model year (MY) you have.

      Note: to convert from kW to horsepower, multiply the kW value by 1.341.

b. Determine which TRUs or TRU gensets have engines with MY 2001 and older, and MY 2002, all of which must meet the Low-Emission TRU In-Use Performance Standard (LETRU) by the end of 2008 and 2009, respectively, and the Ultra-Low Emission TRU In-Use Performance Standard (ULETRU) by 2015 and 2016, respectively.

   1. For each TRU and TRU genset that must meet LETRU, tabulate the TRU manufacturer, and look at the engine's emission control label (typically on the engine valve cover) and tabulate:
      Engine manufacturer
      Engine model
      Engine family

   2. Develop an LETRU compliance strategy and capital expenditure plan for these engines.

      In addition to considering equipment age, expected remaining life, and service history, the operator may elect to conduct a detailed inspection, measure lube oil consumption and fuel use. When are major repairs and component replacements expected to occur? Is lube oil consumption excessive? Has fuel use increased over time?

      ARB encourages TRU owners to carefully evaluate operating expenses related to fuel use. Energy conservation and the savings that result from using new equipment would reduce the emissions of greenhouse gases and help to mitigate global warming, which is an urgent problem. As equipment ages, it usually becomes less efficient, unless it is carefully maintained. Truck

[5] Review the TRU ATCM, 13 CCR, §2477, subsections (e)(1)(A), (e)(1)(B), and (e)(1)(C), and Ref. 2-FAQ and Guidelines, section IV.

and trailer van insulation deteriorates very quickly due to road vibrations and moisture. Door seals also deteriorate, leading to outside air intrusion into the refrigerated cold space. Anecdotal information indicates the heat load on the refrigeration system can increase by 50 percent in the first three years of service due to such deterioration. Thereafter, it gets even worse, resulting in increased TRU engine run time and fuel use to maintain the same temperature set points. Refrigerant leaks do not just have inordinately high climate change effects, they also contribute to lost refrigeration system efficiency and increased fuel use.

ARB recommends that a TRU owner's compliance plan be based on good business and environmental considerations. A change in business plans may be necessary to support the compliance plan.

LETRU compliance options include:

i. Retrofit with a Level 2 Verified Emission Control Device (VDECS) that reduces PM emissions by at least 50 percent. Refer to ARB's Diesel Emission Control Strategies Verification web site at http://www.arb.ca.gov/diesel/verdev/verdev.htm to see what Level 2 VDECS are available for the TRU application and the specific engine model year (MY), model, and family. Alternatively, consult with TRU manufacturers or dealer/distributors to see what they recommend for compliance with the TRU ATCM.

   Operators that choose to retrofit with a VDECS that requires certain fuel properties to be met in order to achieve the required PM emission reductions shall **only** fuel the subject TRU or TRU genset with fuel the meets these specifications when operating in the State of California. In addition, operators that choose a VDECS that requires certain fuel properties to be met in order to prevent damage to the VDECS or an increase in toxic emissions, other harmful compounds, or in the nature of the emitted PM shall **only** fuel the subject TRU or TRU genset with fuel that meets these specifications.

Note: Operators may want to consider complying with ULETRU early at the LETRU compliance date (skipping the LETRU requirement) so that they avoid a second compliance requirement.

ii. Replace the TRU engine with a new or newer engine.
ARB believes that no in-use TRU engines' emissions meet LETRU using the engine certification approach. Unless in-use engine testing is conducted to prove LETRU is being met throughout the TRU ATCM compliance period, the engine certification approach to compliance is not allowed. This means that a replacement engine can be used to comply, by virtue of the compliance date for the replacement engine model year being further out in the future. In

other words, using the engine replacement option **only** resets the compliance dates for the engine to meet the TRU In-Use Performance Standards. For example, if you elect to replace a MY 1999 engine with a MY 2007 engine, the compliance requirements would change from meeting LETRU by 12-31-08 (for the old engine) to meeting ULETRU by 12-31-14 (for the replacement engine). The model year of the engine determines the in-use performance standard that applies and the compliance date. (See 13 CCR, §2477, subsections (e)(1)(A) and (e)(1)(B) to determine the compliance requirements and date for the chosen replacement engine.)

iii. Use an Alternative Technology. See Ref. 8 – Use an Alternative Technology. Note that use of an Alternative Technology to meet LETRU would also meet ULETRU if diesel PM emissions are eliminated at distribution facilities.

iv. Sell the unit out-of-state or out-of-country. See Ref. 7 – Prohibitions.

v. Scrap the unit. (Note: Noncompliant units that are intended for scrap must be visibly disabled so that they are clearly permanently inoperative.)

c. Determine which units have engine MY 2003 and subsequent, which must meet the ULETRU standard by the end of the 7th year after the engine model year (e.g. MY 2003 engines must comply with ULETRU by the end of 2010; MY 2004, by the end of 2011; and similarly for subsequent MYs).

1. For each TRU and TRU genset that must meet ULETRU, tabulate the TRU manufacturer, and look at the engine's emission control label (typically on the engine valve cover) and tabulate:
Engine manufacturer, model, model year, and engine family.

2. Options for compliance with the ULETRU standard are similar to meeting the LETRU standard, except as follows:

i. Retrofit with a Level 3 VDECS that reduces PM emissions by at least 85 percent. Refer to ARB's Diesel Emission Control Strategies Verification web site at http://www.arb.ca.gov/diesel/verdev/verdev.htm to see if there are any Level 3 VDECS available for the engine MY, model, and family. Alternatively, consult with TRU manufacturers or dealer/distributors to see what they recommend for compliance with the TRU ATCM.

ii. Replace the TRU engine with a new or newer engine.

Note that unless the replacement engine was certified to meet a new engine standard that meets ULETRU, this may **only** reset the compliance dates for the engine to meet this In-Use Performance Standard. For example, if you elect to replace a MY 2003 engine with a MY 2009 engine, compliance requirements would go from meeting ULETRU by 12-31-10 (for the old engine) to meeting ULETRU by 12-31-16 (for the replacement engine). (See 13 CCR, §2477, subsections (e)(1)(A) and (e)(1)(B) to determine the compliance requirements and date for the chosen replacement engine.)

The ULETRU In-Use Performance Standards using the engine certification approach is as follows:

ULETRU In-Use Performance Standard for Certified Engines	
HP	**Engine Certification**
less than 25	Not Applicable – use other option
25 or greater	0.02 g/hp-hr (0.03 g/kW-hr)

iii. Use an Alternative Technology. See Ref. 8 – Use an Alternative Technology.

iv. Sell the unit out-of-state or out-of-country. See Ref. 7 – Prohibitions.

v. Scrap the unit. (Note: Noncompliant units that are intended for scrap must be visibly disabled so that they are clearly permanently inoperative.)

Ref. 4 - ARB Identification Numbering (IDN) Requirements[6]

Only the owner of a TRU is allowed to apply for an IDN. The owner may submit hardcopy application forms or apply online. Hardcopy forms may be downloaded off the TRU web site. These forms should be available starting in early December 2008. There will be a link on the TRU website (http://www.arb.ca.gov/diesel/tru.htm) for online IDN applications starting in early December 2008. IDNs are mandatory for California-based TRUs and TRU generator sets. They are voluntary for TRUs that are based outside of California, but operate in California.

IDN Applications are due at ARB by January 31, 2009. After January 31, 2009, TRU owners must apply for ARB I.D. numbers within 30 days of the transfer of title date for any new or used TRUs purchased for terminal assignment in California.

[6] Review the TRU ATCM, 13 CCR, §2477, subsection (e)(1)(E) and Ref. 2 - FAQ and Guidelines, section IV.

Owners and operators that lease or rent TRUs must follow "Procedures for Leased/Rented TRUs" (see Ref. 9).

a. Hardcopy IDN application process.
   1. Download the hardcopy IDN Application Form from the TRU website:
   2. Gather the data required.
   3. Follow the instructions and fill out a hardcopy IDN Application Form for each California-based TRU and TRU genset.
   4. Submit the completed form to ARB by January 31, 2009[7].
      Mail or deliver to ARB at the address listed immediately below:

      California Air Resources Board
      Stationary Source Division (TRU)
      1001 I Street
      Sacramento, CA 95814

   5. ARB will issue the TRU owner an owner/operator number and temporary password by mail. The user must use these to revise IDN information. If the owner logs onto the on-line TRU System with the OON and temporary password, they will be prompted to change the password to one of their own choosing.

b. On-line IDN application process.
   It is recommended that TRU owners download a hardcopy IDN application form to help them understand what information is required in advance of the on-line application session. Download hardcopy forms from the TRU website:
   http://www.arb.ca.gov/diesel/tru.htm
   1. The first step is to apply for an owner/operator number (OON) and establish a password. This must be done prior to applying for IDNs or submitting an operator report. This security measure ensures the TRU owner's information is held confidential. After an IDN is established, only the owner can revise the IDN information.
      i. Click on the link to apply for an OON.
      ii. Fill out an on-line OON application form, providing company name and contact information. Click on the "submit" icon.
      iii. The system prompts the user for a password.
   2. Log into the TRU System website using the OON and password.
   3. Click on the link for "Apply for TRU IDN"
   4. Follow the online instructions for providing the required information.
   5. The system asks the user to confirm the information being submitted.
   6. Confirm or edit the information, then "submit" the application.
   7. The system issues an IDN and shows the IDN on a confirmation receipt.
   8. Print the receipt.

c. Hardcopy IDN Information Revision.
   Only the owner of a TRU can revise the IDN information. This step can occur any time after the IDN application has been issued, but within 30 days of the change in IDN information.

[7] Hardcopy applications for ARB IDNs may be submitted in conjunction with the Initial Operator Report.

1. Download the hardcopy IDN Information Revision Form from the TRU website.
2. Gather the data required.
3. Follow the instructions and fill out a hardcopy IDN Information Revision Form.
4. Submit completed forms to ARB by January 31, 2009[8].
   Mail or deliver to ARB at the address listed immediately below:

   California Air Resources Board
   Stationary Source Division (TRU)
   1001 I Street
   Sacramento, CA 95814

d. Online IDN Information Revision.
   Only the owner of a TRU can revise the IDN information. This step can occur any time after the IDN application has been issued.

   1. Log into the TRU System website using the OON and password.
   2. Click on the link for "Revise an IDN's Information".
   3. Select a revision category.
   4. Follow the online instructions for providing the required information.
   5. The system asks the user to confirm the information being submitted.
   6. Confirm or edit the information, then "submit" the revision.
   7. The system shows the confirmation receipt.
   8. Print the receipt.

Note: The use of ARB I.D. numbers is intended to significantly reduce roadside and facility inspections times. There are no associated fees for this service at this time.

Ref. 5 - Operator Reporting[9]

An operator may submit hardcopy Initial Operator Report forms or submit them online at the TRU web site at: (http://www.arb.ca.gov/diesel/tru.htm). Hardcopy forms may be downloaded off the TRU website starting in early December 2008.

Initial Operator Report forms are due to ARB by January 31, 2009. Operator report updates are required within 30 days of any changes to the operator report information.

Owners and operators that lease or rent TRUs must follow "Procedures for Leased/Rented TRUs" (see Ref. 9).

a. Hardcopy initial operator reporting.
   If the operator has a valid owner/operator number (OON) and password, use it when submitting an Initial Operator Report. Otherwise, the operator will be issued an OON after the hardcopy Initial Operator Report is received at ARB. Only operators with a valid OON and password can submit an Operator Report Update (see section c. or d. for information on updates).

[8] Hardcopy applications for ARB IDNs may be submitted in conjunction with the Initial Operator Report.
[9] Review the TRU ATCM, 13 CCR, §2477, subsection (f)(1) and Ref. 2 - FAQ and Guidelines, section IV.

1. Download the hardcopy Initial Operator Reporting Form from the TRU website.
2. Gather the data required for all California-based TRUs and TRU gensets[10] in your inventory.
3. Follow the instructions and enter the required information and data onto the Initial Operator Reporting Form.
4. Submit completed forms to ARB by January 31, 2009[11].
   Mail or deliver to ARB at the address listed immediately below:

   California Air Resources Board
   Stationary Source Division (TRU)
   1001 I Street
   Sacramento, CA 95814

b. On-line Initial Operator Reporting.
   It is recommended that TRU owners download a hardcopy Initial Operator Reporting Form to help them understand what information is required in advance of the on-line application session.
   1. If the operator doesn't already have an OON and password, the first step would be to apply for an OON and establish a password. Click on the link, "TRU OON Application" and follow onscreen instructions.
   2. Log on to the TRU system using your OON and password. This security measure ensures the TRU operator's information is held confidential. After an operator report has been submitted, only the operator can update the operator report.
   3. Click on the link for "Initial Operator Report"
   4. Follow the online instructions for providing the required information.
   5. The system asks the user to confirm the information being submitted.
   6. Confirm or edit the information, then "submit" the Initial Operator Report.
   7. The system shows a confirmation receipt.
   8. Print the receipt.

c. Hardcopy Operator Report Updates.
   Provide updates to the operator report within 30 days of any changes to information in the report (e.g. buying or selling TRUs or TRU gensets, changes in compliance status, terminal assignments, etc.). The 30-day compliance clock starts with the transfer of title date, or installation completion date of the engine, or emission control equipment, as appropriate.

   If the operator has a valid owner/operator number (OON) and password, use it when submitting an Operator Report Update. Only operators with a valid OON and password can submit an Operator Report Update.
   1. Download the hardcopy Operator Report Update Form from the TRU website.
   2. Gather the data required.

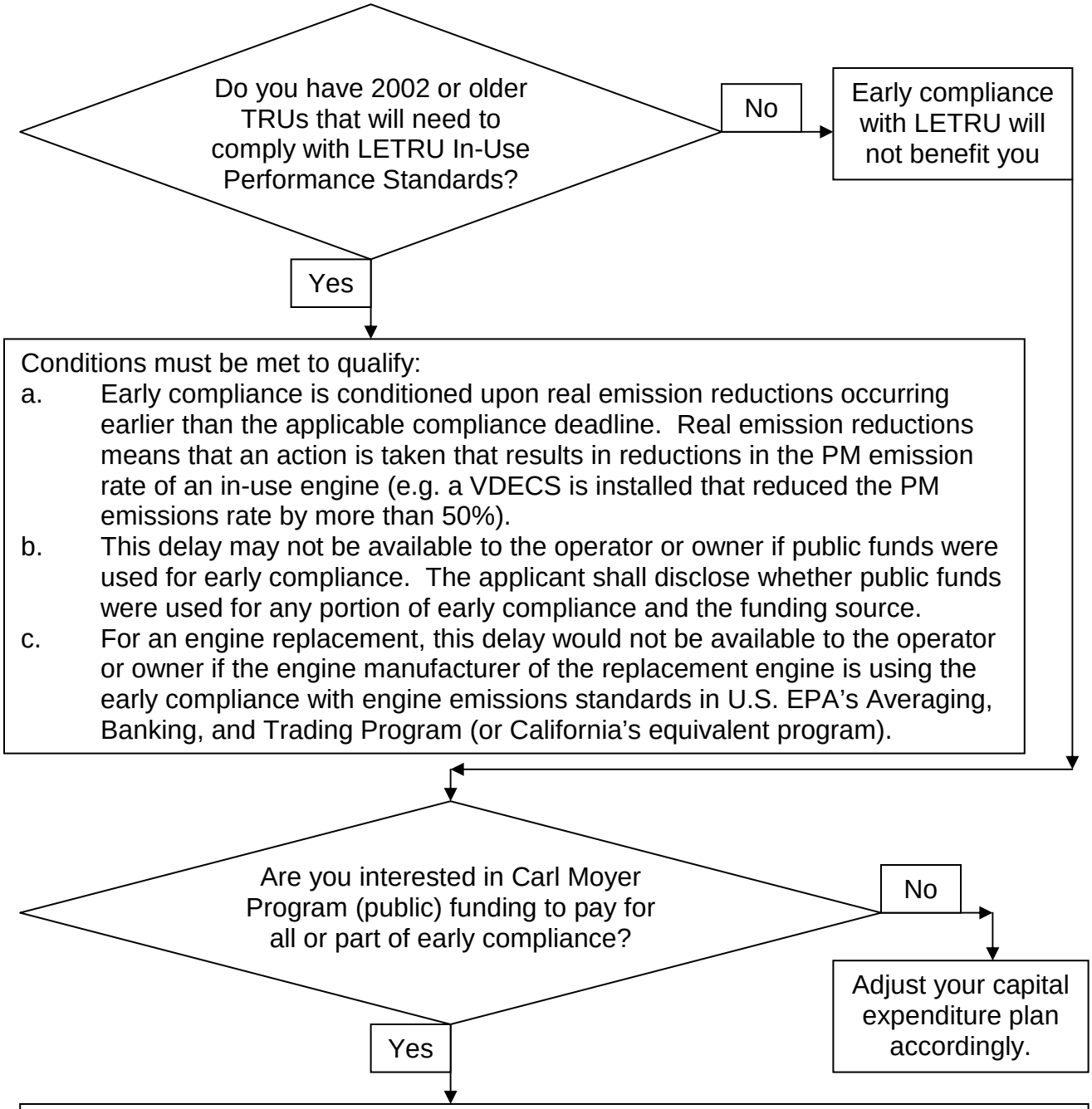
[10] "California-Based TRUs and TRU Gensets" means TRUs and TRU gensets equipped on trucks, trailers, shipping containers, or railcars that a reasonable person would find to be regularly assigned to terminals within California.
[11] Hardcopy applications for ARB IDNs may be submitted in conjunction with the Initial Operator Report.

3. Follow the instructions and enter the required information and data onto the Operator Report Update Form.
4. Submit completed forms to ARB by January 31, 2009.
   Mail or deliver to ARB at the address listed immediately below:

   California Air Resources Board
   Stationary Source Division (TRU)
   1001 I Street
   Sacramento, CA 95814

d. Online Operator Report Updates.
   1. Log on to the TRU system using your OON and password. After an Initial Operator Report has been submitted, only the operator can update the report.
   2. Click on the link for “Operator Report Update”.
   3. Select an update category.
   4. Follow the online instructions for providing the required information.
   5. The system asks the user to confirm the information being submitted.
   6. Confirm or edit the information, then “submit” the Operator Report Update.
   7. The system shows a confirmation receipt.
   8. Print the receipt.

Ref. 6 - Early Compliance with LETRU[12]



[12] Review the TRU ATCM 13CCR, §2477, subsection (e)(1)(F), and Ref. 2 – FAQ and Guidelines, section IV.

Ref. 7 - Prohibitions[13]

Once a compliance deadline passes for a TRU or TRU genset model year, it is illegal to sell, offer for sale, lease, offer to lease, rent, or offer to rent a TRU for use in California that does not meet the in-use performance standards in the ATCM. Owners still have options for dealing with noncompliant TRUs or TRU gensets.

Manufacturers, dealers, and distributors can sell, lease, or rent them outside of California, but must make every reasonable effort to ensure that the new owner is appraised that they cannot operate them in California. It is recommended that they have the new purchaser sign an acknowledgment that the unit is noncompliant for use in California. They should make sure they've documented that they've told the new owner that, as equipped when sold, it's illegal to operate the unit in California.

TRU owner/operators that are not in the business of selling to an ultimate purchaser (e.g. not a TRU or TRU genset manufacturer, dealer, or distributor), or not in the business of renting, or leasing TRUs or TRU gensets, can sell noncompliant TRUs and TRU gensets. However, they should let the prospective new owner know that, as equipped when sold, the unit is noncompliant for use in California.

Violations of these prohibitions are subject to fines up to $35,000 per day per violation.

Ref. 8 – Use of Alternative Technologies[14]

Alternative technologies can be used to meet the LETRU and ULETRU In-Use Performance Standards if diesel PM emissions are eliminated while at a distribution facility. With very narrow exceptions, conventional diesel fuel shall not be used in an Alternative Technology to achieve compliance with the TRU ATCM.

Alternative Technologies are listed below, along with accompanying limitations and requirements:

a. Electric standby. This TRU compliance option still involves the use of a TRU engine, but the TRU is equipped with electric standby – an electric motor drives the refrigeration system when it's at a distribution center. Infrastructure and operating procedures at distribution facilities must produce zero TRU engine emissions at all distribution facilities it visits, with limited exceptions (e.g. during an emergency or normal yard maneuvering related to ingress and egress). TRU engine operations at distribution facilities, other than during these narrow exceptions, would be a violation, subject to fines and penalties. This compliance option may only work for captured fleets (e.g. fleets that only visit the fleet owner's distribution facilities), where the owner can assure the necessary infrastructure is available and all the TRU engine operations of the specific TRU are eliminated at all distribution facilities in California. Records are necessary to show compliance.

[13] Review 13 CCR §2477, §§(g)
[14] Review 13 CCR, §2477, subsections (e)(1)(A)3. and (e)(2)(A), and Ref. 2 – FAQ and Guidelines.

Plugging in to eliminate TRU engine operation is not required at retail and foodservice delivery points (e.g. grocery stores, restaurants, convenience stores, etc.), provided there are no more than two TRU-equipped trucks or trailers making deliveries at one time and the TRU engine run time never exceeds 30 minutes at each stop. Plugging in would be required at delivery points to achieve compliance if there are typically more than two TRUs making deliveries at one time, the TRU engine run time is more than 30 minutes per stop, or the truck or trailer is left to serve as temporary refrigerated storage at the delivery point. TRU engine operations at retail or foodservice delivery points, other than during these narrow exceptions, would be a violation.

Records that may provide proof of compliance may include (but are not limited to) gate or facility check-in and check-out records, daily hour meter reading records that delineate electric standby use from diesel engine use, and diesel fuel use records for each affected unit. The records would need to clearly show that electric standby is used when at the facility and the diesel engine is used only when away from the facility.

b. Cryogenic temperature control systems or hybrid cryogenic temperature control systems. Cryogenic temperature control systems use a cryogen, such as liquid carbon dioxide or liquid nitrogen, that is routed through an evaporator coil that cools air blown over the coil. The cryogenic system uses a vapor motor to drive a fan and alternator, and a propane-fired heater superheats the carbon dioxide for heating and defrosting. Electrically driven fans may be used instead of a vapor motor and heating and defrost needs may be met by using electric heaters and/or vehicle engine coolant. Cryogenic temperature control systems have no diesel engine driving a refrigeration system. Hybrid cryogenic temperature control systems, however, use a cryogenic temperature control system in conjunction with a conventional TRU that is powered by a TRU engine. These systems would only comply with the TRU ATCM if infrastructure and operating procedures at all distribution facilities the unit visits produce zero TRU engine emissions, with limited exceptions (e.g. during an emergency or normal yard maneuvering). Records would be needed to substantiate compliant operations at distribution facilities if a hybrid cryogenic temperature control system is used. TRU engine operations at distribution facilities, other than during these narrow exceptions, would be a violation. This compliance option may only work for captured fleets (e.g. fleets that only visit the fleet owner's distribution facilities), where the owner can assure all the operations of the specific TRU engine are eliminated at all distribution facilities in California.

Using the cryogen to eliminate TRU engine operation is not required at retail and foodservice delivery points (e.g. grocery stores, restaurants, convenience stores, etc.), provided there are no more than two TRU-equipped trucks or trailers making deliveries at one time and the TRU engine run time never exceeds 30 minutes at each delivery point. Using the cryogen would be required at these delivery points to achieve compliance if there are typically more than two TRUs making deliveries at one time, the TRU engine run time is more than 30 minutes per delivery point, or the truck or trailer is left to serve as temporary refrigerated

storage at the delivery point. TRU engine operations at retail or foodservice delivery points, other than during these narrow exceptions, would be a violation, subject to fines and penalties.

c. Alternative fueled engines. These engines must use fuel that meets the definition of alternative fuel. See Ref. 10 – Definitions.

Spark-ignited engines using alternative fuel, rated at greater than 25 hp, must meet the large spark-ignited engine standards.

Alternative fueled compression-ignition engine retrofit systems (e.g. dual-fueled pilot-injection kits) must be verified under the Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (California Code of Regulations title 13, section 2700 et seq).

d. Fueled exclusively with alternative diesel-fuel that has been verified as a VDECS by ARB. Operators choosing to use alternative diesel fuels in compression ignition TRU and TRU genset engines to meet the requirements of the TRU ATCM, title 13 CCR, §2477, subsection (e)(1), are required to:

1. Maintain records of alternative diesel fuel use in accordance with 13 CCR, §2477, subsection (f)(1)(B) to show the TRU uses only the chosen alternative diesel fuel for all operations in California.

2. Use only fuel that is verified by ARB as a VDECS (in-use verification). The alternative diesel fuel shall contain no conventional diesel or CARB diesel fuel. For example 100 percent biodiesel (B100) or 100 percent Fischer-Tropsch or Gas-to-Liquid synthetic diesel fuel (F-T or GTL100).

3. Permanently affix a label in clear view near the fuel tank fill spout that identifies the proper fuel that is required to be in compliance with the TRU ATCM.

4. In the event that the operator decides to revert to using conventional diesel or CARB diesel fuel, the operator shall comply with the in-use operation requirements of 13 CCR, §2477, subsection (e)(1) within 10 days of discontinuation of alternative diesel fuel use. Within 10 days of discontinuation, the operator shall notify the Executive Officer in writing of this change in fuel use and shall include an update to any ARB I.D. number application or operator report submitted to comply with subsections (e)(1)(E), (e)(1)(F), or (f)(1) of 13 CCR 2477.

e. Fuel cell-powered temperature control systems. If a reformer is used with diesel fuel as the source of hydrocarbons, then emissions must be evaluated and verified through the *Verification Procedure Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (13CCR section 2700 – 2710).*

f. Equipped with other systems approved by ARB to not emit diesel PM or increase public health risk near a facility. Contact ARB and provide the details of the TRU ATCM alternative technologies compliance plan (ATCP). The ATCP must assure emission reductions are real, enforceable, verifiable, and meet or exceed the TRU ATCM baseline emission reductions.

Ref. 9 – Procedures for Leased and Rented TRUs

- TRU lessors are owners of TRUs that convey the use of their property by lease or by rent to renters or lessees.
- For the purposes of ARB Identification Numbers (IDN) and Operator Reports, the terms "renter" and "lessee" have the same meaning, in that they hold property (e.g. TRU) under a lease or agreement to pay rent.
- A TRU rental yard or lease business qualifies as a terminal.
- Lessors and IDN applications:
  - Lessors must submit applications for IDNs for the TRUs they own which are:
    - Based at a California rental yard or lease business (terminal), or
    - Rented or leased to operators that base the TRU at a California terminal.
- Lessors and IDN information revisions:
  - When TRUs are rented or leased out, the lessor must submit an IDN Information Revision to:
    - Change the currently leased or rented status to leased/rented,
    - Change operator: fill in the lessee information as the current operator, and
    - Change assigned terminal: fill in the lessee's terminal information.
  - When a rental/lease TRU is returned to the lessor, the lessor must submit an IDN Information Revision to:
    - Change the currently leased or rented status to not leased/rented,
    - Change operator: show the lessor as the current operator, and
    - Change assigned terminal: fill in the lessor's terminal information (rental yard).
- Lessors and operator reports:
  - Lessors with terminals (rental yards) in California must submit an Initial Operator Report that:
    - Lists all of their California terminals,
    - Lists all the TRU IDNs that are assigned to their terminals located in California.
  - When the TRU is leased after the Initial Operator Report, the lessor must submit an Operator Report Update to remove the leased TRU's IDN from their California-based TRU inventory list.
  - When a rental/lease TRU is returned to the lessor, the lessor must submit an Operator Report Update to add the IDN back into their California-based TRU inventory list.
  - Lessors with TRUs that are based in terminals located outside of California that lease TRUs that are operated in California are exempt from submitting Initial Operator Reports and Operator Report Updates for those TRUs. However, they should inform their customers (renters or lessees) that if they (the renter or lessee) base the TRU at a California terminal, they are responsible for including

the leased TRU IDN in their Initial Operator Report, and/or that an Operator Report Update is required by California law when they lease and return the TRU.

- Lessees and operator reports:
  - When a TRU is leased or rented to an operator that assigns the TRU to a California terminal, the lessee is responsible for including the leased/rented TRU's IDN in their Initial Operator Report.
  - If a TRU is leased after the operator's Initial Operator Report, the lessee is responsible for submitting an Operator Report Update to add the leased TRU's IDN to their California-based TRU inventory list.
  - When a rental/lease TRU is returned to the lessor, the lessee must submit an Operator Report Update to remove the IDN from their California-based TRU inventory list.

Ref. 10 – Definitions (13 CCR, §2477(d))

(1) "Affiliate or Affiliation" refers to a relationship of direct or indirect control or shared interests between the subject business and another business.

(2) "Alternative Fuel" means natural gas, propane, ethanol, methanol, or advanced technologies that do not rely on diesel fuel, except as a pilot ignition source at an average ratio of less than 1 part diesel fuel to 10 parts total fuel on an energy equivalent basis. Alternative fuels also means any of these fuels used in combination with each other or in combination with other non-diesel fuels. Alternative-fueled engines shall not have the capability of idling or operating solely on diesel fuel at any time.

(3) "Alternative-Fueled Engine" means an engine that is fueled with a fuel meeting the definition of alternative fuel.

(4) "Alternative Diesel Fuel" means any fuel used in diesel engines that is not commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, pursuant to the specification for Diesel Fuel Oils D975-81, and does not require engine or fuel system modifications for the engine to operate, although minor modifications (e.g. recalibration of the engine fuel control) may enhance performance. Examples of alternative diesel fuels include, but are not limited to, biodiesel, Fischer Tropsch fuels, and emulsions of water in diesel fuel. Natural gas is not an alternative diesel fuel. An emission control strategy using a fuel additive shall be treated as an alternative diesel fuel based strategy unless:
   (A) The additive is supplied to the vehicle or engine fuel by an on-board dosing mechanism, or
   (B) The additive is directly mixed into the base fuel inside the fuel tank of the vehicle or engine, or
   (C) The additive and base fuel are not mixed until vehicle or engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine or vehicle.

(5) "ARB" means the California Air Resources Board.

(6) “B100 Biodiesel Fuel” means 100% biodiesel fuel derived from vegetable oil or animal fat and complying with ASTM D 6751-02 and commonly or commercially known, sold, or represented as “neat” biodiesel or B100. B100 biodiesel fuel is an alternative diesel fuel.

(7) “B100 Biodiesel-Fueled” (compression-ignition engine) means a compression-ignition engine that is fueled by B100 biodiesel fuel.

(8) “Business” means an entity organized for profit including, but not limited to, an individual, sole proprietorship, partnership, limited liability partnership, corporation, limited liability company, joint venture, association or cooperative; or solely for purposes of the Prompt Payment Act (Government Code 927 et seq.), a duly authorized nonprofit corporation.

(9) “California-Based TRUs and TRU Gensets” means TRUs and TRU gensets equipped on trucks, trailers, shipping containers, or railcars that a reasonable person would find to be regularly assigned to terminals within California.

(10) “CARB Diesel Fuel” means any diesel fuel that is commonly or commercially known, sold or represented as diesel fuel No. 1-D or No. 2-D, pursuant to the specification for Diesel Fuel Oils D975-81 and meets the specifications defined in *13 CCR 2281, 13 CCR 2282, and 13 CCR 2284*.

(11) “Carbon Monoxide (CO)” means a colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels.

(12) "Carrier” means any person, party, or entity who undertakes the transport of goods from one point to another.

(13) "Certification" means the obtaining of an Executive Order for a new offroad compression-ignition engine family that complies with the off-road compression-ignition emission standards and requirements specified in the California Code of Regulations, Title 13, Section 2423. A "certified engine" is an engine that belongs to an engine family that has received a certification Executive Order.

(14) "Certification Data" means the ARB Executive Order number and related exhaust emission data for each test cycle mode used to certify the engine family and obtain the certification level shown in the certification Executive Order. Such data includes modal exhaust emissions data for nitrogen oxides, non-methane hydrocarbons, carbon monoxide, and particulate matter includes, as a minimum, torque, engine speed, weighting factor, power, mass emission rate (grams per hour), and certification test fuel.

(15) “Compression Ignition (CI) Engine” means an internal combustion engine with operating characteristics significantly similar to the theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.

(16) “Consignee” (see receiver).

(17) "Consignor” (see shipper).

(18) "Cryogenic Temperature Control System" means a heating and cooling system that uses a cryogen, such as liquid carbon dioxide or liquid nitrogen that is routed through an evaporator coil that cools air blown over the coil. The cryogenic system uses a vapor motor to drive a fan and alternator, and a propane-fired heater superheats the carbon dioxide for heating and defrosting. Electrically driven fans may be used instead of a vapor motor and heating and defrost needs may be met by using electric heaters and/or vehicle engine coolant.

(19) "Deterioration Factor (DF)" means a factor that is applied to the certification emission test data to represent emissions at the end of the useful life of the engine. Separate DFs apply to each measured pollutant, except that a combined NMHC+NOx DF applies to engines that do not use aftertreatment devices. Decreasing emissions over time would not be allowed to offset increasing emissions of the other pollutant in this combined DF.

(20) “Diesel Fuel” means any fuel that is commonly or commercially known, sold, or represented as diesel fuel, including any mixture of primarily liquid hydrocarbons – organic compounds consisting exclusively of the elements carbon and hydrogen – that is sold or represented as suitable for use in an internal combustion, compression-ignition engine.

(21) “Diesel-Fueled” means fueled by diesel fuel or CARB diesel fuel in whole or in part, except as allowed for a pilot ignition source under the definition for “alternative fuel”.

(22) "Diesel Oxidation Catalyst (DOC)” means the use of a catalyst to promote the oxidation processes in diesel exhaust. Usually refers to an emission control device that includes a flow-through substrate where the surfaces that contact the exhaust flow have been catalyzed to reduce emissions of the organic fraction of diesel particulates, gas-phase hydrocarbons, and carbon monoxide.

(23) “Diesel Particulate Filter (DPF)” means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate. Periodically the collected particles are either physically removed or oxidized (burned off) in a process called regeneration.

(24) “Diesel Particulate Matter” means the particles found in the exhaust of diesel-fueled CI engines. Diesel PM may agglomerate and adsorb other species to form structures of complex physical and chemical properties.

(25) “Dual-Fuel Engine” means an engine designed to operate on a combination of alternative fuel, such as compressed natural gas (CNG) or liquefied petroleum gas (LPG), and conventional fuel, such as diesel or gasoline. These engines have two

separate fuel systems, which either inject both fuels simultaneously into the engine combustion chamber or fumigate the gaseous fuel with the intake air and inject the liquid fuel into the combustion chamber.

(26) “Emergency” means any of the following times:
  (A) A failure or loss of normal power service that is not part of an “interruptible service contract” (see definition);
  (B) A failure of a facility’s internal power distribution system, provided the failure is beyond the reasonable control of the operator;
  (C) When an affected facility is placed under an involuntary “rotating outage” (see definition).

(27) “Emission Control Strategy” means any device, system, or strategy employed with a diesel-fueled CI engine that is intended to reduce emissions. Examples of emission control strategies include, but are not limited to, particulate filters, diesel oxidation catalysts, selective catalytic reduction systems, alternative fuels, fuel additives used in combination with particulate filters, alternative diesel fuels, and combinations of the above.

(28) “Emissions Rate” means the weight of a pollutant emitted per unit of time (e.g., grams per second).

(29) “Executive Officer” means the Executive Officer of the California Air Resources Board or his or her delegate.

(30) “Facility” means any facility where TRU-equipped trucks, trailers, shipping containers or railcars are loaded or unloaded with perishable goods. This includes, but is not limited to, grocery distribution centers, food service distribution centers, cold storage warehouses, and intermodal facilities. Each business entity at a commercial development is a separate facility for the purposes of this regulation, provided the businesses are “independently owned and operated” (see definition).

(31) “Facility Control (of TRUs or TRU Gensets)” means the TRUs or TRU gensets located at the facility are owned or leased by the facility, its parent company, affiliate, or a subsidiary, or under contract for the purpose of providing carrier service to the facility, and the TRUs' or TRU gensets' arrival, departure, loading, unloading, shipping and/or receiving of cargo is determined by the facility, parent company, affiliate, or subsidiary (e.g scheduled receiving, dispatched shipments).

(32) “Fischer-Tropsch Diesel Fuel” See “ultra-low-aromatic synthetic diesel fuel”.

(33) "Fuel Additive” means any substance designed to be added to fuel or fuel systems or other engine-related engine systems such that it is present in-cylinder during combustion and has any of the following effects: decreased emissions, improved fuel economy, increased performance of the engine; or assists diesel emission control strategies in decreasing emissions, or improving fuel economy or increasing performance of the engine.

(34) "Generator Set (genset)" means a CI engine coupled to a generator used as a source of electricity.

(35) "Hybrid Cryogenic Temperature Control System" means a temperature control system that uses a cryogenic temperature control system in conjunction with a conventional TRU.

(36) "Independently Owned and Operated" means a business concern that independently manages and controls the day-to-day operations of its own business through its ownership and management, without undue influence by an outside entity or person that may have an ownership and/or financial interest in the management responsibilities of the applicant business or small business.

(37) "Intermodal Facility" means a facility involved in the movement of goods in one and the same loading unit or vehicle which uses successively several modes of transport without handling of the goods themselves in changing modes. Such a facility is typically involved in loading and unloading refrigerated shipping containers and trailers to and from railcars, trucks, and ocean-going ships.

(38) "Interruptible Service Contract" means any arrangement in which a nonresidential electrical customer agrees to reduce or consider reducing its electrical consumption during periods of peak demand or at the request of the System Operator in exchange for compensation, or assurances not to be blacked out or other similar non-monetary assurances.

(39) "In Use TRU, TRU genset, or engine" means a TRU, TRU genset, or engine that is not a "new" TRU, TRU genset, or engine.

(40) "Low Emission TRU (LETRU or L)" means a TRU or TRU genset that meets the performance standards described under paragraph 13 CCR, §2477(e)(1)(A)1. or (e)(1)(A)2.

(41) "Manufacturer" means a business as defined in Government Code §14837(c).

(42) "Military tactical support equipment (TSE)" means equipment that meets military specifications, owned by the U.S. Department of Defense and/or the U.S. military services, and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

(43) "Model Year (MY)" means diesel-fueled engine manufacturer's annual production period, which includes January 1st of a calendar year, or if the manufacturer has no annual production period, the calendar year.

(44) "New TRU, TRU Genset, or Engine" means any TRU, TRU genset, or engine that has never been subject to a retail sale or lease to an "ultimate purchaser" (see definition).

(45) “Nitrogen Oxide (NOx)” means compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition.

(46) ”Non-California-Based TRUs and TRU Gensets” means TRUs and TRU gensets that are equipped on or used in trucks, trailers, shipping containers, or railcars that a reasonable person would find to be regularly assigned to terminals outside of California and operate in California from time to time for the purpose of transporting perishable goods into or out of the state.

(47) “Non-methane Hydrocarbons (NMHC)” means the sum of all hydrocarbon air pollutants except methane. NMHCs are precursors to ozone formation.

(48) “Operate” means to start, cause to function, program the temperature controller, select an operating program or otherwise control, fuel, monitor to assure proper operation, or keep in operation.

(49) “Operator” means any person, party or entity that operates a TRU or TRU genset for the purposes of transporting perishable goods, excluding an employee driver and third party maintenance and repair service, and including but not limited to:

(A) Manufacturer, producer, supplier, carrier, shipper, consignor, consignee, receiver, distribution center, or warehouse of perishable goods;

(B) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including but not limited to, a government corporation;

(C) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law.

(50) “Owner” means any person that legally holds the title (or its equivalent) showing ownership of a TRU or TRU genset, excluding a bank or other financial lending institution, and including but not limited to:

(A) Manufacturer, producer, supplier, carrier, shipper, consignor, consignee, receiver, distribution center, warehouse;

(B) An individual, trust, firm, joint stock company, business concern, partnership, limited liability company, association, or corporation including but not limited to, a government corporation;

(C) Any city, county, district, commission, the state or any department, agency, or political subdivision thereof, any interstate body, and the federal government or any department or agency thereof to the extent permitted by law.

(51) “Owner/Operator” means a requirement applies to the owner and/or operator of a TRU or TRU genset, as determined by agreement or contract between the parties if the two are separate business entities.

(52) “Parent Company” means a company that has a controlling interest in another company, usually through ownership of more than one-half the voting stock.

(53) “Particulate Matter (PM)” means the particles found in the exhaust of CI engines, which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.

(54) “Rated Brake Horsepower” means the power delivered, according to the statement of the engine manufacturer, at the rated speed.

(55) “Real Emission Reductions” means that an action is taken that results in reductions in the PM emission rate of an in-use engine (e.g. a VDECS is installed that reduced the PM emissions rate by more than 50%).

(56) “Receiver” means the person, party, or entity that receives shipped goods, cargo, or commodities.

(57) “Refrigerated Trailer” means a trailer van, railcar, or shipping container equipped with a TRU or TRU genset. Pursuant to Health and Safety Code section 39618, refrigerated trailers are mobile sources and shall be regulated by the ARB on a statewide basis.

(58) “Rotating Outage” means a controlled involuntary curtailment of electrical power service to consumers as ordered by the system operator - see definition.

(59) “Shipper” means the person, party, or entity who usually owns or supplies the commodities shipped by a carrier.

(60) “System Operator” means one of the several organizations that control energy in California. System operators include, but are not limited to, the California Independent System Operator, the Los Angeles Department of Water and Power, the Imperial Irrigation District, the Sacramento Municipal Utility District.

(61) “Terminal” means any place where a TRU or TRU genset equipped truck, trailer, shipping container, railcar or TRU genset is regularly garaged, maintained, operated, or dispatched from, including a dispatch office, cross-dock facility, maintenance shop, business, or private residence.

(62) "Tier 4 Nonroad/Offroad Emission Standards" means the emission standards and associated procedures promulgated by U.S. Environmental Protection Agency in "Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel; Final Rule" (Vol. 69, No. 124 Fed.Reg. pp. 38957-39273 (June 29, 2004).

(63) “Transport Refrigeration Unit (TRU)” means refrigeration systems powered by integral internal combustion engines designed to control the environment of temperature sensitive products that are transported in trucks and refrigerated trailers. TRUs may be capable of both cooling and heating.

(64) “TRU Generator Set (TRU genset)” means a generator set that is designed and used to provide electric power to electrically driven refrigeration units of any kind. This includes, but is not limited to gensets that provide electricity to electrically powered refrigeration systems for semi-trailer vans and shipping containers.

(65) “Ultimate Purchaser” means with respect to a new TRU, TRU genset, or engine, the first person who in good faith purchases a new TRU, TRU genset, or engine for purposes other than resale.

(66) “Ultra-Low-Aromatic Synthetic Diesel Fuel” means fuel produced from natural gas, coal, or biomass by the Fischer-Tropsch gas-to-liquid chemical conversion process, or similar process that meets the following properties:

Property	**ASTM**	**Value**
Sulfur Content (ppmw)	D5453-93	<1
Total Aromatic Content (wt %)	D5186-96	<1.5%
Polynuclear Aromatic Content (wt %)	D5186-96	<0.5%
Natural Cetane Number	D613-84	>74

(67) “Ultra-Low Emission TRU (ULETRU or U)” means a TRU or TRU genset that meets the performance standards described under 13 CCR, §2477, subparagraph (e)(1)(A)1. and (e)(1)(A)2. or that uses an “alternative technology” in accordance with 13 CCR. §2477, subparagraph (e)(1)(A)3.

(68) “Verification Classification Level” means the classification assigned to a Diesel Emission Control Strategy by the Executive Officer as defined in the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emission from Diesel Engines (13 CCR Sections 2700 – 2710).* PM reductions correspond as follows: Level 1: ≥ 25%; Level 2: ≥50%; Level 3: ≥85% or 0.01 g/hp-hr.

(69) “Verified Diesel Emission Control Strategy” (VDECS) means an emission control strategy designed primarily for the reduction of diesel particulate matter emissions that has been verified per the *Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (13 CCR Sections 2700 – 2710)*. Examples of diesel retrofit systems that may be verified include, but are not limited to, diesel particulate filters, diesel oxidation catalysts, fuel additives (e.g. fuel-borne catalysts), alternative fuels (e.g. dual fuel), alternative diesel fuels, and combinations of the above.

Additional Assistance

Additional questions may be addressed to Mr. Rod Hill of the Stationary Source Division at (916) 327-5636 or by email at rhill@arb.ca.gov.

To request special accommodation or language needs, please contact the following:
Assistance for Disability-related accommodations, please go to
http://www.arb.ca.gov/html/ada/ada.htm
or contact the Air Resources Board ADA Coordinator, at (916) 323-4916.

TTY/TDD/Speech-to-Speech users may dial 7-1-1 for the California Relay Service.

Assistance in a language other than English, please go to
http://www.arb.ca.gov/as/eeo/languageaccess.htm or contact the Air Resources Board Bilingual Coordinator, at (916) 324-5049.